

Installation Instructions #20024-28

Fax On Demand Section 5 - Document #115 - Sheet 1 of 6

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AutoCommand® Model 20024/20028 **Remote Control Car Starter with Alarm and** **Keyless Entry Features Installation Manual**

DesignTech International, Inc. • 7955 Cameron Brown Court • Springfield, Virginia 22153 USA • 703-866-2000 or 800-337-4468

Please Read Completely Before Beginning

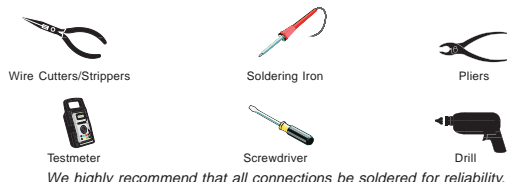
Congratulations on your purchase of the AutoCommand® Remote Car Starter. The AutoCommand® Remote Car Starter system allows you to start the car by remote control from the comfort of your home or office in order to cool it down in the summer or heat it up in the winter. This model includes keyless entry and alarm features.

AutoCommand® is for automatic transmission cars only. It is an extremely sophisticated system with multiple built-in safety and security features.

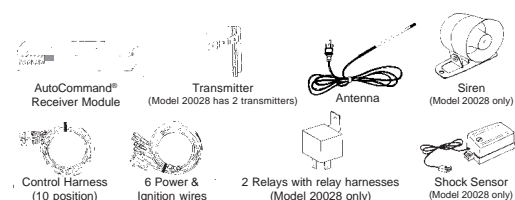
The AutoCommand® Remote Car Starter:

- Will start your car by remote control, and run the heater, defroster, or air conditioner to warm up or cool down the car.
- Is designed to start the car if it is in park, and only if the hood is closed.
- Has Lock, Unlock and Trunk keyless entry features.
- Has alarm functions including starter kill which becomes active when the doors are locked with the remote control.
- Will attempt to start the car for up to six seconds, but no longer (to avoid damage to the starter motor). Should the car not start, or if it stalls after starting, the AutoCommand® will make two further attempts to start it.
- Will not let the car be driven without the key in the ignition.
- Shuts itself off automatically after 10 or 15 minutes (programmable) if you forget to come out to your car.
- Will shut off if the brake pedal is pushed, the hood is opened, or the transmission is shifted out of park - unless the key is in the ignition and in the "run" position.
- Allows you to remove the key while leaving the car running with the doors locked for up to 10 or 15 minutes utilizing the QUICK STOP™ option. (See Separate User Tip Sheet)
- Starts the car automatically whenever the temperature drops below 0°F (-18°C), or if the battery voltage drops below 11 volts with the Cold Start™ option activated. (See Separate User Tip Sheet)
- Has the "Daily Start™" feature which allows the vehicle to be started at the same time the following day. (See Separate User Tip Sheet).
- Is quality engineered, microprocessor controlled, and made in the USA to provide many years of reliable use.
- Comes with a 2 year warranty.

Tools required to install the AutoCommand® Unit:

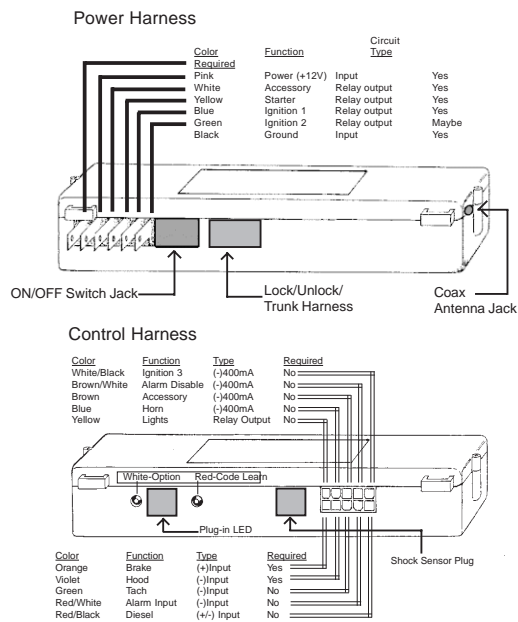


We highly recommend that all connections be soldered for reliability.



Parts Kit in plastic baggy:

Wiring Diagram



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On cars with airbags, you may notice bright yellow tubes or harnesses underneath the steering column area. DO NOT tamper with these wires in any way, to prevent personal injury and/or damage to the air bag system.



Battery gases are explosive. Do not smoke while working near the car's battery.

Note: Some installers connect a battery charger to the vehicle's battery during installation. This is fine, but it must be removed before running the vehicle under AutoCommand® control.

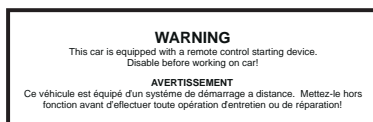
When working the wires through the car's firewall, be sure to protect them from sharp metal edges and from hot surfaces on the engine.

INSTALLATION INSTRUCTIONS

1. Before You Start

Take the time to read through the whole installation manual.

IMPORTANT: After having read the entire manual, start the installation by putting the yellow **WARNING STICKER** in the engine compartment. Choose a surface that is clean and readily visible when the hood is open.



POWER & IGNITION HARNESS

The AutoCommand® module will be installed under the dash once all wiring has been completed. **Do not mount the module at this time! You will need to check the diagnostic light (LED) as the installation progresses.** Locate (or drill) a hole in the firewall to run the VIOLET, GREEN, YELLOW, and BLUE wires of the **Control Harness** and the PINK wire of the **Power harness** through into the engine compartment. The remaining short wires stay in the passenger area. Leave about a foot of the wire harness under the dash for ease of working and visual access to the diagnostic light.

The Installation Information section of our web site www.designtech-intl.com is available 24 hours/day to provide you with up to date vehicle wiring information for your particular vehicle if needed.

Note: Always connect the *Pink* and *Black* wires before connecting any of the other wires.)

2. Black Wire (16 AWG) - Ground

Connect the **BLACK** wire to a very good, clean chassis ground in the driver's kick panel area. Use the small red ring terminal if needed. The metal bracing around or beneath the dash board is not adequate.

3. Pink Wire (12 AWG) - Power (+12V)

Connect the ring terminal at the end of the short **PINK** wire to the +12 volt terminal of the battery. Run the long pink wire through the firewall of your vehicle. Join the remaining ends of the power wire together by soldering them. Alternatively, you may wish to use a yellow butt terminal, but we recommend soldering. Now insert the 30 amp green fuse into the holder. As the power wire is connected the LED will blink once.

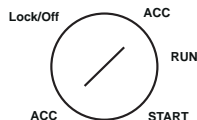
Note: Failure to properly install the fuse holder and 30 amp fuse to the pink wire voids all product warranties.

Ignition Key Diagram for Steps 4-7

The vehicle's wires are found coming off of the key switch.

Ignition Key Diagram for Steps 4-7

The vehicle's wires are found coming off of the key switch.



4. Blue Wire (14 AWG) - Ignition 1

Connect the **BLUE** wire to the ignition 1 wire of your vehicle. This wire will measure +12V on the test meter in the "run" and "start" position, and is off (ground) in the "lock/off" and "accessory" position.

5. Green (14 AWG) - Ignition 2

Connect the **GREEN** wire to the second IGN2 wire (if applicable) of your vehicle. This wire will power the heater/air conditioner (in most cars). This wire will measure +12V on the test meter in the "run" position only.

6. White Wire (14 AWG) - Accessory

Connect the **WHITE** wire to the accessory wire which is +12V in the "run" and "accessory" position, but off (ground) in the "start" and "off" positions.

7. Yellow (14 AWG) - Starter

Connect the **YELLOW** wire to the starter wire. This wire will measure +12V on the test meter in the "start" position only.

Note: Nissan vehicles have two starter wires. Connect both starter wires to the **YELLOW** wire.

8. Plug-In On/Off Switch -- Plug-In LED

Plug the ON/OFF control switch into the module just to the right of the power wires.

Note: Mount the control switch in the dash so that it is easily accessible and so that the "ON" position is facing upward. Connection of this switch is mandatory. Plug the LED into the red connector between the 2 push button switches.

Control Harness (All wires are the smaller 18 AWG size)

9. Red / Black Wire Diesel "wait to start" Control Harness

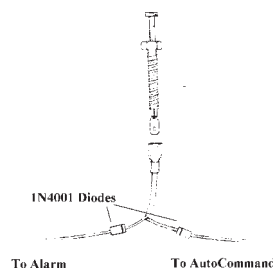
This wire is only used in diesel vehicle applications - and is optional. This wire can be hooked up to the "wait to start" light's switched wire behind the dash. If option 9 is set, this wire will feed information to the AutoCommand as to when to crank the vehicle over.

10. Violet Wire - Hood Pin Switch - Control Harness

The hood pin switch **MUST** be installed with the AutoCommand®. It prevents operation of the AutoCommand® when the hood is open and is used to initialize the unit. Connect the **VIOLET** wire to the hood pin switch using the red connector.

How to share a hood pin switch with an alarm...

Note: If you already have a hood pin switch which is being used by a car alarm system, you may share the wiring - but be sure to diode isolate each wire going to the hood pin switch with the bands of diodes pointing towards the pin switch as shown here:



11. Orange Wire - Brake Shut-off - Control Harness

Connect the **ORANGE** wire to the brake wire which receives +12V when the brake pedal is depressed. **This wire must be connected.** It arms a critical safety feature which disables the AutoCommand® when the brake pedal is depressed.

Note: In some cars, the ignition must be in the "on" position to test the power in the brake wire.

Note: If the IGN1 & IGN2 wires come on whenever the brake is depressed and the hood is open this just means you need to initialize the unit in Step 12.

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12. Initializing the AutoCommand®

BEFORE THE CAR WILL START FOR THE FIRST TIME, YOU MUST INITIALIZE THE AUTOCOMMAND®

- The AutoCommand® requires the installer to open the hood and then press and hold the brake pedal. Note: The dash lights will come on if the unit is not initialized.
- While depressing the brake (with the engine off and the hood open) turn the ignition key to the "RUN" (not "start") position.
- Put the car in gear from the "PARK" position.
- Put the car back in "PARK" and release the brake.

Note: Confirm initialization by turning the ON/OFF control switch "OFF" and then "ON". The red LED on the AutoCommand® module will flash once immediately as the switch is flipped from the "OFF" to the "ON" position.

If the unit is not initialized then the dash lights will come on (the AutoCommand® powers up the ignition wires) when the brake is depressed when the hood is open when the control switch is on. REPEAT STEPS A THROUGH D. See the purple colored Trouble Shooting Sheet if necessary.

13. Green Wire - Tach Input - Control Harness

The AutoCommand® has two ways of monitoring the car during the starting process. Both ways will ensure a clean, accurate start. Read about both methods before deciding which one to use. Normally you should try the "No Tach™" method first.

"No Tach™" Starting

This starting method does not require the connection of the **GREEN** tach wire. This method will start the car by reading the car's voltage before attempting to start, and then looking for a voltage increase when the alternator kicks in. This feature automatically takes into account voltage, temperature, and the time since the vehicle was last run. The "No-Tach™" starting is preset at the factory and you can skip step 13A if you would like to use it. Note that if the vehicle is hard to start, set option #3 (step 23) for "extended crank."

Tachometer sensing

If the vehicle is generally hard starting (requiring a cranking time of more than 1 second) you will get more accurate starting with the tachometer sensing starting method. This method starts the car by reading the engine speed (tach) information from a wire under the hood. If you choose tachometer sensing, connect the **GREEN** (18 awg) wire to the car's tach wire under the hood (normally the negative side of the coil or tach output of coil pack). After you have connected the **GREEN** wire, you need to teach the AutoCommand® the vehicle's tach rate at idle. Proceed to step 13A.

Note: You must have already initialized the module from Step 12.

13A. Tach Rate Learning

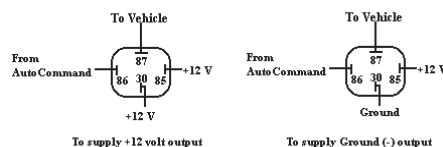
Note: Only use if the tachometer sensing method is chosen.

- Connect the **GREEN** wire to the car's tach wire under the hood.
- Turn the On/Off control switch to the "OFF" position. Wait 5 seconds for the first set of LED flashes to stop.
- Push the White "option" button once and you will see the red LED flash. Now push the middle button on the transmitter for a second until you see the red LED flash again. You are now in TACH mode. (If the LED flashed twice -- simply push the transmitter button again until you get only one flash).
- Wait 5 seconds for the red LED to flash 3 times.
- Turn the On/Off control switch back to the "ON" position.
- Start the car and let it get to a *normal* idle. Do not press on the gas pedal.
- Push the red "code" button for a second.
- Watch the red LED. It will turn on (solidly) after 3 or 4 seconds, indicating that the idle rate has been learned.
- Watch the LED stay on steady as the vehicle is running and goes off as you rev the rpms above twice the idle rate. The LED must go out when you rev it above twice the idle rate to confirm correct tach learning.
- Turn the key to the "Lock/Off" position.
- Turn the On/Off control switch off and the LED will go out.

Note: Once these steps are complete -- you cannot use the LED to confirm tach again. You can however repeat the above steps to learn tach over again at any time.

OPTIONAL STEPS

Many of the optional steps require a relay to be hooked up. The most common relay used for this type application is the Bosch type relay. Use the diagram below for a typical hookup. If you have another relay then you need to know that pins 85 and 86 in this diagram relate to the coils of the relay. Pin 30 is the 'common', and pin 87 is the 'normally open' contact. If your relay has a pin 87A in the middle it is the normally closed contact and is not used. (The diagram below is typical for horn or trunk applications).



14. Yellow Wire - Headlights/Parking Lights - Control Harness

Connect the **YELLOW** wire which is optional, if your want to activate the low beam headlights or parking lights. After the AutoCommand® has started the car, the lights will remain on until the system shuts off after 10 minutes, or when the brake pedal is pressed, or when the key is inserted into the ignition and the car is put into gear. **This is a relay +12V output.** Connect the **YELLOW** wire to the wire that powers the lights for this feature.

15. Blue - Horn / Siren - Control Harness

The **BLUE** wire which is optional, signals the horn to honk (or siren to chirp) once each time the AutoCommand® starts the car and each time the locks are locked or unlocked. **This is a 400 mA transistor ground output which MUST drive a relay** as in the left diagram above. (Included in Model 20028 only). If you are using the relay and relay harness included with Model 20028, the connections are as follows.

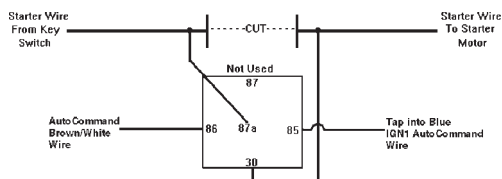
Harness Wire	Connection
Black	AutoCommand® Blue wire
White	+12V Constant
Blue	+12V Constant
Yellow	To Siren's Brown (or colored) wire [Connect the Black wire from the Siren to Ground]

16. Brown Wire - Accessory Pulse - Control Harness

The **BROWN** wire which is optional, is the Accessory Pulse output which gives out a transistor ground output just as the Accessory wire comes on. This is important in unusual vehicles to control the defroster or to control the GM R.A.P. system. **Again, this is a 400 mA transistor ground output which MUST drive a relay** (not included).

17. Brown/White - Alarm Disable/Starter Kill - Control Harness

The **BROWN/WHITE** wire which is optional is **Alarm Disable**, which will give out a quick negative pulse just before starting the vehicle. This wire can be used to turn off the factory alarm system in vehicles which have them. In most vehicles this wire is located in the driver's kick panel. Using Option 19, you can set this to **Starter Kill** which is active whenever the vehicle is running under AutoCommand® control or when the alarm is armed. This can be used to disable the starter wire of the vehicle. Have this wire go to one side of a relay coil and tap into the Blue IGN1 wire and connect this to the other side of the relay coil. Cut the starter wire of the vehicle in half and connect one side to the common contact of the relay and the other and the other side to the normally closed contact of the relay.



Starter Kill Relay

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If you are using the relay and relay harness included with Model 20028, the connections are as follows:

Harness Wire	Connections
Black	To Brown/White wire of AutoCommand®
White	Tap into Blue IGN1 wire of AutoCommand®
Blue	To engine side of cut starter wire
Red	To key side of cut starter wire

18. White/Black Wire - IGN 3 / VATS - Control Harness

The **WHITE/BLACK** wire which is optional, is a 400 mA transistor ground output that acts just like the IGN1 or IGN2 relay outputs (active in the "run" and "crank" positions). **This wire is a negative transistor output and MUST be set up to power a relay** (not included). It can be used to power the third ignition wire at the ignition key (necessary for vehicles such as: Lincoln Continental, Town Car, and Grand Marquis).

19. Red/White Wire - Alarm Input - Control Harness

The **RED/WHITE** wire is the alarm input. This wire will accept any negative alarm input, including: door inputs, shock sensors, radar sensors, etc. Any sensor that supplies a negative or ground output when activated is acceptable.

If you are using a sensor or input that switches to (+) when triggered, you will need to reverse the polarity before connecting to this RED/WHITE wire (Ford door switches for example).

The AutoCommand® is "Last door arming" and "negative going trigger". You should diode isolate the inputs of two or more sensors on the same input wire.

If you choose not to use this alarm feature then permanently ground this wire.

20. Keyless Entry Wires 3 Wire Plug-in Harness

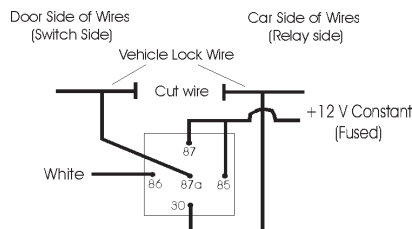
The three wires function as follows:

Lt. Green	Trunk (Transistor Ground output – Relay required)
Yellow	Negative – Unlock
White	Negative – Lock

Determine the polarity of your door lock system using a test meter.

For **NEGATIVE** locks (the lock wire sees a ground signal briefly as the electric locks are locked) -- connect the Yellow wire to the Unlock wire and the White wire to the Lock wire.

For **POSITIVE** locks (the lock wire sees a +12 volt signal briefly as the electric locks are locked but **does not see ground** when they are inactive) connect the Yellow wire to the Lock wire and the White wire to the Unlock wire.



For **REVERSING POLARITY** (the lock wires sees a +12 volt signal briefly as the electric locks are locked and **sees a ground** signal when they are inactive) connect them per the diagram below:

Example of Reverse Polarity Lock hookup with White wire. Repeat with second relay using the Yellow wire and the Unlock vehicle wire. Note that the vehicle lock and unlock wires are cut in half in each case.

Most **VACUUM** operated door lock systems are positive but require Option 18 for Long locks to be set.

REQUIRED FINAL STEPS

You must have hooked up all required wires and completed Initialization (Step 12) to proceed forward.

21. Trying the Unit Out

WARNING: Be prepared to apply the brake during this testing. Close the hood, fully apply the emergency brake, and place the vehicle in Park. Turn the On/Off switch on -- the red LED will flash once.

- Once all the wiring is checked and is correct, put the car in park, toggle the control switch off then on, then press the middle button on the transmitter.
- The car should start and continue to run for ten minutes. Please make sure that the engine shuts down if the car is taken out of park, the hood is opened, the brake is pressed or the transmitter button is pushed again. If the car does not start see Special Cases or Code Learning section.

22. The Antenna

Feed the coax antenna around under the dash and up the inside of the right or left windshield post and over the top of the windshield. Use the 2 enclosed antenna clips to mount the last clear eight inches behind the rear view mirror and two inches below the metal of the car. Clean the windshield with the alcohol pad provided for maximum adhesion. Use the 2 double stick foam tape pieces to mount the antenna clips. The better exposed the clear tube section of the antenna is the better the range performance. Now plug the end of the antenna into the AutoCommand module. In some vehicles you will get better range performance if the antenna is pointing vertically downward from the top of the windshield.

Note: The wiring section of the installation is now complete. Be sure to cap all unused wires so as to prevent short circuits, and mount the module securely under the dash. When tying up and mounting, be sure to avoid any moving parts (steering column, pedals) and sharp edges.

23. Trouble Shooting with the Self Diagnostics

The AutoCommand® contains a built in diagnostic routine that will indicate why the unit started or why the unit turned off the car the last time that the unit was used.

To activate the diagnostic mode for **why it turned off**, simply turn the On/Off control switch to the "OFF" position. In a few seconds, the red LED on the module will flash 1 to 12 times to identify the problem. See the chart below for an explanation of the flashes:

- | | |
|------------|--|
| 1 flash | 10/15 minute time out. Unit should be fine. |
| 2 flashes | Unit turned off because Brake or Hood was activated. |
| 3 flashes | No Tach or Stalled. Review Step 13. |
| 4 flashes | Received another remote input from the transmitter |
| 5 flashes | Transmission was shifted into gear. Call for tech help. |
| 6 flashes | Low battery voltage, or may be missing an ignition wire which powers up the alternator |
| 7 flashes | Alarm Input triggered |
| 8 flashes | Over current - One of the 400 mA (-) transistor outputs (Starter kill, lock, unlock, horn, lights, or trunk) of the control harness is driving too much current. Make sure to use a relay where necessary. |
| 12 flashes | The Control Switch was turned off. |

For reasons **why it last started**, simply put your foot on the brake while you turn the switch off. Keep holding the brake down until the flashes start. The codes are as follows:

- | | |
|-----------|--|
| 1 flash | The unit has not started yet since it was last powered up. |
| 2 flashes | Received a radio signal from the transmitter to start. |
| 3 flashes | N/A |
| 4 flashes | Temp reached 0° F in vacation mode. |
| 5 flashes | Voltage reached 11 volts in vacation mode. |
| 6 flashes | Received a start command from the optional Pager Unit. |
| 7 flashes | Started from 24 hour daily start feature. |

24. Setting Program Features:

The AutoCommand® unit has 21 special features available. You will not need to use these special features in most situations. The factory settings will operate most vehicles. **You must turn the On/Off control switch to the "OFF" position to program any features.** Note that when turning off this control switch, the red LED will flash a few times, giving the diagnostic code described in Section 23. Wait a few seconds for it to finish before programming your new Options.

Feature #	Factory Setting (2 flashes)	Option (1 flash)
1	"No-Tach"	Tach Mode
2	10 min. run time	15 min. run time
3	Normal Crank	Extended Crank
4	Normal Crank	Super Crank
5	Normal Voltage Metering	Ignore Voltage Metering
6	Gasoline vehicles	Diesel vehicles
7	"Enable" feature	No "Enable"
8	Normal	Daytime Running Lights
9	Normal	Diesel Wait to Start
10	Normal	Ign. 2 not active during crank

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11	Horn Pulsing	Siren Constant
12	Chirp with Locks	Silent lock/Unlock/Start
13	Active	Passive Arming
14	Normal	Lock Follow ignition
15	Normal	Unlock Follow ignition
16	Normal	Double Pulse Lock
17	Normal	Double Pulse Unlock
18	Short Locks	Long Locks
19	Alarm Disable	Starter Kill
20	Accessory Pulse	Dome Light
21	Trunk	Carburetor
22	N/A	N/A
23	N/A	N/A
24	Alarm	No Alarm

Option 1 No-Tach Tach Mode
Sets the starting method. The factory setting uses "No-Tach" starting. If you wish to use the tach to start, follow the instructions in 13A.

Option 2 10 min. Run Time 15 Min Run Time
Is for the choice of run times.

Option 3 Normal Crank Extended Crank
Will add 50% more crank time to starting.

Option 4 Normal Crank Super Crank
Adds 100% more crank time. This is necessary on many diesel and hard to start vehicles. Options #3 and #4 can be added together for even more cranking time.

Option 5 Normal Voltage Metering Ignore Voltage Metering
Is used in the "No-Tach" starting method for some diesel vehicles.

Option 6 Gasoline Vehicles Diesel Vehicles
Option must be activated when installing on a diesel vehicle.

Option 7 "Enable" Feature No "Enable"
Cancels the Enable mode safety feature. The Enable mode requires that the driver toggle the ON/OFF control switch "OFF" then "ON" each time the driver removes the key from the ignition in order to "enable" the vehicle for AutoCommand® control. This feature guards against undesired starting of the vehicle by remote control.

Option 8 Normal Daytime Running Lights
This option will turn the headlights on about 10 seconds after it sees the key in the ignition position — and turn it off when the key is removed from the ignition.

Option 9 Normal Diesel "Wait to Start"
This option will control the time before cranking the diesel vehicle by looking at the "wait to start" light of the vehicle. Simply hook the Red/Black Input wire of Step 9 up to the wire behind the "wait to start" light. Also set option 6 for diesels.

Option 10 Normal IGN2 not active during Crank
This option will turn off the IGN2 output (THICK GREEN wire) during cranking. This may be required on some 1997/1998 vehicles.

Option 11 Horn Pulsing Siren Constant
Changes the thin blue wire from pulsing output for horn to constant output for a siren.

Option 12 Chirp with locks Silent lock/unlock/start
This option will eliminate the chirp with Start, Lock and Unlock.

Option 13 Active Arming Passive Arming
Active arming—Requires the owner to actively arm the car with the remote control. Passive arming—Automatic arming after the key is removed and the door is closed.

Option 14 Normal Lock Follow Ignition
This option locks the door when the key is in the ignition.

Option 15 Normal Unlock Follow Ignition
Selecting this option will unlock doors when key is removed from ignition.

Option 16 Normal Double Lock Pulse
This option will pulse the lock output wire twice instead of once for normal mode.

Option 17 Normal Double Unlock Pulse
This option will pulse the unlock output wire twice instead of once for normal mode.

Option 18 Short lock pulse Long lock pulse
This option will increase the door lock time from 0.6 seconds to 3 seconds for vehicles with vacuum locking systems. (many European vehicles).

Option 19 Alarm Disable Start Kill
The factory setting of Alarm Disable will give you a quick pulse whenever the Left button unlocks the doors or the middle button is used to start the vehicle. The option of Starter Kill comes on and stays on whenever the AutoCommand® is running or the alarm is armed. This wire controls a relay which opens up the path of the starter wire (downstream from the Dark Yellow wire hookup).

Option 20 Accessory Pulse Dome Lamp
Accessory pulse puts out a brief pulse output after the AutoCommand® starts or stops the vehicle. When set, this output can be used to turn on a defroster that requires a momentary pulse or could be used to control GM RAP (retained accessory power) output. Dome lamp will come on when you unlock the door for 20 seconds.

Option 21 Trunk Carb output
Converts the Lt. Green wire, normally the trunk output, into an output that will control a carburetor solenoid. Set this option if you plan on using a carburetor kit to pump the gas pedal before starting the car with the AutoCommand®.

Option 24 Alarm No Alarm
This feature can disable all alarm functions if the alarm features are not used.

If you want the factory setting, DO NOTHING and skip this section. If you want to change one of the features, TURN THE ON/OFF CONTROL SWITCH TO THE "OFF" POSITION. Wait for the red LED to stop flashing, then continue with the following procedures:

A. For options 1-9: Push the white option button to the left of the red LED. Each time you push the button the red LED will flash 1 to 9 times signifying at which feature you are (press it once, the LED flashes once. Press it again and it will flash two times. Press it again and it will flash three times, etc., to show what feature you are at).

For options 10-19: Push the red option button to the right of the red LED. You will see the LED flash a long blink. This is option 10. You can scroll to option 11 by pressing the white button once — you will see a long blink followed by one short blink. You can scroll to option 12 by pushing the white button again — one long and two short blinks signify you are at option 12.

For options 20-24: Push the red option button twice to get the two long blinks — you are now at option 20. Push the white button to jump ahead to option 21 — two long blinks and one short blink. Push three more times to get to option 24 — two long and four short blinks.

B. When you are at the feature level you desire, push the transmitter button for a second and the red LED will flash once to signify you are at the Option setting. You can push the transmitter button again and it will flash twice to signify you are at the Factory setting. Push the transmitter button again and you will go back to the Option setting.

C. You can choose to change another feature by starting over again at Step A. or, in six seconds, the AutoCommand® automatically exits the programming mode (Three LED flashes).

D. When finished -- switch the Control Switch back ON. The LED will flash once.

25. Final shock sensor hook up for Model 20028:

Plug the shock sensor unit into the 3 wire connector on the back side of the AutoCommand® Module. Use one or two cable ties to tightly fasten the shock sensor unit to the steering column of the vehicle. This placement gives the best overall coverage for a vehicle. Adjust the screw setting so that a hard impact on the vehicle lights up the LED on the shock sensor - but light impacts do not trigger it.

SPECIAL CASES

1 Code Learning

Your transmitter is factory coded to the AutoCommand® module with over 16,000,000 different codes. The AutoCommand® module can learn the codes of up to 4 different transmitters. If you want to add additional transmitters to the receiver or if it does not respond to your transmitter - follow the steps below to teach the receiver the transmitter code(s):

- Turn the Control Switch on.
- Push the red button to the right of the red LED. The red LED and the dash lights come on for a second. (The AutoCommand® ignition and accessory wires come on).

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- C. Hold down the Lock button on the transmitter until the red LED and the dash lights come on again for a second. The module has now learned the transmitter code. Release hold on the transmitter button.
- D. To learn additional transmitters (up to 3 more), immediately (within 5 seconds) push the Lock button on another transmitter for a few seconds until the red LED and the dash lights come on for a second again.
- E. Wait 5 seconds after the last time the transmitter was pushed to exit the code-learning stage. (The LED, ignition and accessories flash on 4 times).

Note: Teaching the module a new transmitter code will erase all previous codes - so all transmitters must be taught. You have only 5 seconds between transmitters to begin teaching a new transmitter.

2 Alarms:

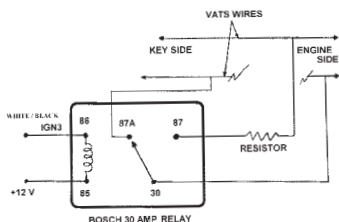
DesignTech makes a special module called the Universal Alarm Bypass Module (model #20401). This module will allow one to bypass any of the new alarm systems on the market -- VATS, PASSLOCK, PASSLOCK 2, SATURN, and the TRANSPONDER types. You can order this module from your dealer or directly from DesignTech. If you do not have this module, you can still bypass these systems as described here:

VATS system (for GM cars with special PASS key).

If you have a GM vehicle with a factory anti-theft system (a resistor in the key), you need to follow these directions below. However for a few 1995+ GM vehicles (Buick Skylark, Chevrolet Cavalier, Oldsmobile Acura and the Pontiac Sunfire) you must get Tech Tip #8113 from DesignTech.

Measure the resistance of the key. It should be between 392 ohms and 11,800 ohms. To do this, put the ohm meter probes on each side of the key pellet. This value should be close to one of the following (all values in ohms): 392, 523, 681, 887, 1.13K, 1.47K, 1.87K, 3.01K, 3.74K, 4.75K, 6.04K, 7.5K, 9.53K, 11.8K. Purchase a resistor with a value within 5% of this measured value and a 30 amp BOSCH type relay. (or purchase DesignTech Alarm Bypass Module part number 20401)

Locate the pair of VATS wires (sometimes **White/Black** striped and **Purple/Black** striped) running behind the dash from the passenger side to the driver's side behind the key switch. Connect our Ignition 3 (**White/Black**) wire to pin 86 and +12V to pin 85 on the relay. Cut ONE of the VATS wires and connect the key-switch side to NC pin 87A, and the other side (Engine Side) to common pin 30. Connect the other VATS wire to NO pin 87 with the selected resistor soldered in line as shown here:



Some of the newer GM vehicles have a slight variation on the wiring for the VATS system. On these cars, there is an **ORANGE** wire (actually a vinyl sleeve) that contains smaller wires. This is located underneath the steering column next to the **YELLOW** sleeve that is labeled "Air bag wiring". Slit the **ORANGE** sleeve open to expose two pairs of wires which are either both white, OR both yellow, OR both black.

Note: When installing a VATS bypass system, the **WHITE/BLACK** IGN3 wire must only go to the VATS relay. If you need IGN3 in the car, simply supply power to the IGN3 wire of the vehicle by jumping power from the **GREEN** IGN2 wire. (Thus **GREEN** will be powering up 2 wires behind the key).

For GM Vehicles with the Pass Lock System: 1995+ Chevrolet Cavalier Z24, Pontiac Sunfire GT and 1996+ Pontiac Sunfires and Grand Am, Olds Achieva, Buick Skylark and Chevrolet Cavalier; order Fax on Demand document # 8113 to work around this system

3 Diesel Vehicles:

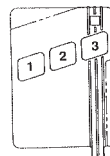
If possible, hook up the **RED/BLACK** wire from Step 9 to ensure the best possible starting. This wire can be very hard to hook up but is not required.

You must set the following options for diesel vehicles. (Use the Chrysler settings for all other diesel vehicles.)

Option	6 Diesel	3 Ext. Crank	4 Super Crank	5 IgnoreMeter
Chrysler	X	X		
Ford	X	X		X
Chevrolet	X	X	X	X

USER TIPS

The transmitter button functions as follows if all features are hooked up:



- Button 1: Once - Lock doors/arm alarm
Again - Unlock doors/disarm alarm
Hold for 2 seconds - PANIC (horn and lights)
- Button 2: Once - Start the car with all accessories left on
Again- Stop the car
- Button 3: Once - Turn on the headlights for 30 seconds
Again - Turn off the headlights
Hold for 2 seconds - pop the trunk

The LED on the transmitter will display 3 different colors - Green for Button #1, Red for Button #2, and Yellow for Button #3. The unit is powered by a long life lithium battery. The transmitter and AutoCommand® receiver module are FCC and DOC approved.

Important Note:

Make sure that all drivers who will be operating the AutoCommand® are fully aware of the safety precautions installed and their limitations. Stress the importance of switching the On/Off control switch to the "OFF" position (down) every time the car is serviced. Show the user how the control switch must be turned off and on again after pulling out the key before leaving the car. If the user forgets to enable the AutoCommand® this way when they leave the vehicle they can enable it by pushing and holding the middle transmitter button for 6 seconds. Give the user a copy of the tan page - USER TIPS AND NOTES so that they can familiarize themselves with the product.

USER INFORMATION: The tan USER TIPS AND NOTES sheet or Wallet Card gives you further detail regarding daily use of this product. Any modifications not expressly approved by DesignTech will void the user's authority to operate the equipment.

OTHER ACCESSORIES

- A. Extra transmitters for more than one user in the family. Up to four transmitters can be used with each receiver in the vehicle.
- B. Garage Door Receiver Unit will allow the same AutoCommand® transmitter to operate an electric garage unit.

The following installation accessories are available through your dealer or DesignTech. All prices are in U.S. dollars. Shipping and handling costs are included.

#20061	Extra 3 button transmitter	\$49.95
#20059	Transmitter Long Life lithium battery	\$7.95
#20401	Universal Alarm Bypass Module	\$39.95
#20043	Bosch 30 amp relays	\$9.95
#30021	Garage Door Receiver Unit	\$49.95
#20314	Range doubling Glass Mount Antenna	\$59.95



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PLEASE HAVE MODEL NUMBER (20024/20028) AND DIAGNOSTIC CODES OF (STEP 23) READY BEFORE CALLING TECH SUPPORT

DesignTech disclaims any liability or responsibility arising out of any inaccuracies of this information or use of this information in installation or otherwise.